

December 03, 2020

## KEY TAKEAWAYS

- Cases are surging nationally. 37 states are in surge trajectories, including most mid-Atlantic states.
- Cases are surging in Virginia. 30 of Virginia's 35 health districts are in growth trajectories, including 21 in surge trajectories. Many populous urban and suburban areas are experiencing surges.
- Statewide, the reproduction rate has been above 1.0 since late September. It remains above 1.0 in most regions as well.
- Thanksgiving holidays likely caused a short-term lag in testing and case reporting, which may be masking some infections.
- Due to surges and data lag, UVA and RAND suggest 3-day rather than 7-day averages may be better indicators of near-term trend, along with measures using report or confirmation date over date of onset.

**364,000**

Total Cases Expected in 2021

**47,000**

Expected Peak Weekly Cases

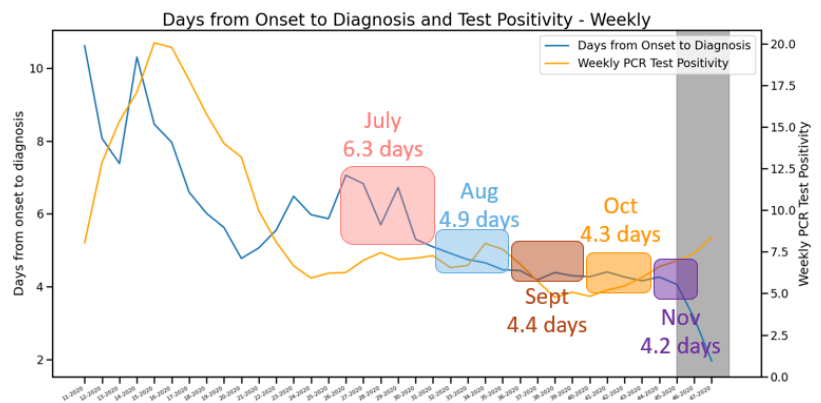
Week Ending Feb 7, 2021

## KEY FIGURES

### Reproduction Rate (Based on Confirmation Date)

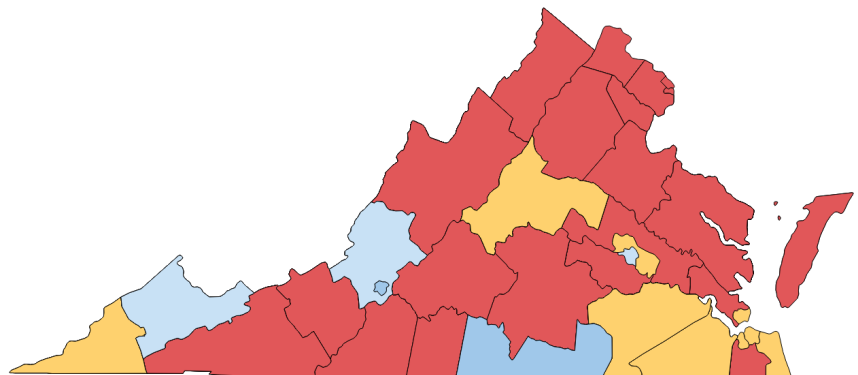
Region	R <sub>e</sub> Nov 30	Weekly Change
State-wide	1.120	-0.286
Central	1.041	-0.339
Eastern	1.104	-0.385
Far SW	1.075	0.057
Near SW	0.957	-0.659
Northern	1.266	-0.105
Northwest	1.119	-0.346

### Case Detection



### Growth Trajectories: 8 Health Districts in Surge

Status	# Districts (prev weeks)
Declining	2 (1, 4)
Plateau	3 (2, 4)
Slow Growth	9 (19, 19)
In Surge	21 (13, 8)



## THE MODEL

The UVA COVID-19 Model and the weekly results are provided by the UVA Biocomplexity Institute, which has over 20 years of experience crafting and analyzing infectious disease models. It is a (S)usceptible, (E)xposed, (I)nfectious, (R)ecovered epidemiologic model designed to evaluate policy options and provide projections of future cases based on the current course of the pandemic.

**COVID-19 is a novel virus causing an unprecedented global pandemic and response. The model improves as we learn more about it.**

## THE PROJECTIONS

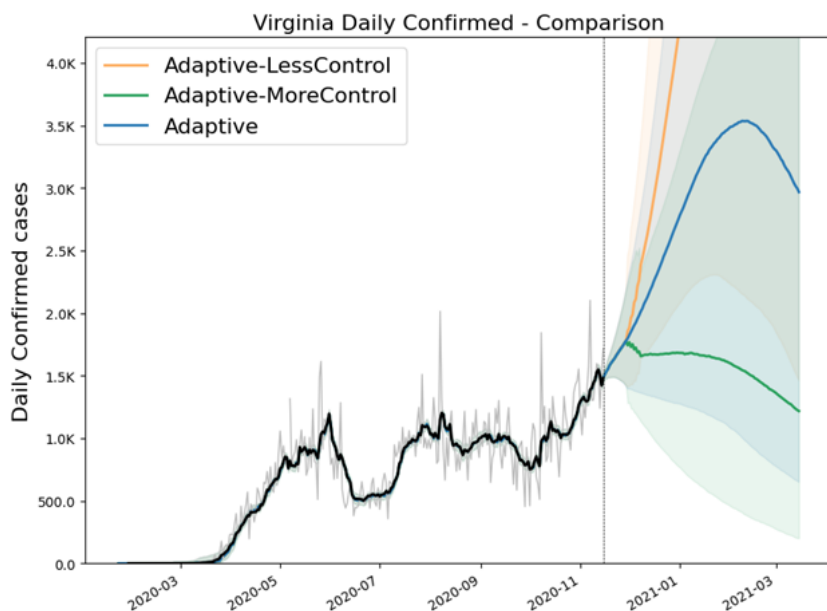
The UVA team continues to improve the model weekly. The UVA model now uses an "adaptive fitting" methodology, where the model precisely traces past and current trends and uses that information to predict future cases. These new projections are based on recent trends the model learns through its precise fitting of each individual county's cases. The new model also includes two "what-if" scenarios to forecast how case growth may respond to seasonal effects, such as changing weather patterns and holiday travel. These "what-if" scenarios are:

**Less control of seasonal effects:** 15% increase in transmission starting December 10, 2020

**More control of seasonal effects:** 15% decrease in transmission starting December 10, 2020

## MODEL RESULTS

With the adaptive modeling approach, the current course predicts that confirmed cases continue to increase through model projection period **peaking at over 47,000 weekly cases on February 7**. If we continue on this trajectory, we would expect over 364,000 total confirmed cases by Thanksgiving. However, there are a number of risks that could influence case growth over the next several weeks, including winter weather, the holiday season, and a national surge in cases. If these result in a jump in case growth, cases could peak at over 77,000 per week by mid-February. However, if Virginians respond by improving prevention efforts such as hand washing, social distancing, wearing masks, and avoiding indoor gatherings, cases could peak in early December, at just under 27,000 cases per week. Virginia's health is in our hands. Follow guidance in the [Forward Virginia](#) plan to help control COVID.



## A POST-THANKSGIVING SURGE?

Last week, most of America took a few days off to celebrate Thanksgiving. Unfortunately, COVID-19 did not. COVID-19 cases continued to surge through the holiday, with deaths hitting new daily records nationally and cases surging in most areas of Virginia. Prior to the Thanksgiving, public health officials warned of the potential for Thanksgiving travel and gatherings to cause a "surge on a surge" of COVID-19 cases. While it is too early to record new cases caused by Thanksgiving celebrations, some data is already offering hints as to the extent to which Americans heeded those warnings. However, these are only hints. Epidemiologists and academics will parse this data and other data for years to fully understand the spread of COVID-19.

## COVID Test and Case Data over Thanksgiving

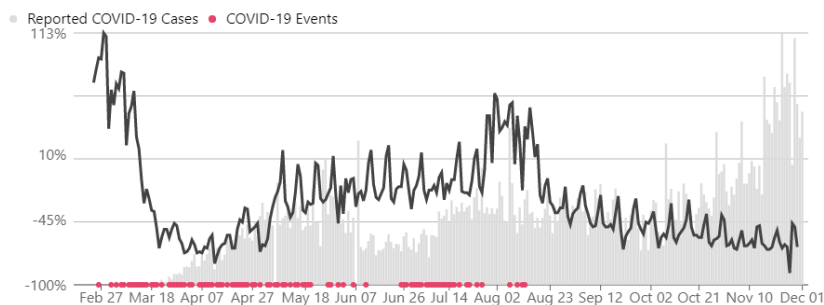
According to VDH data, there was a sharp drop in the number of COVID-19 PCR tests reported over Thanksgiving. [Testing in Virginia](#) peaked on Nov. 18 at just over 34,000 per day, but dropped to below 20,000 in the days following Thanksgiving. This may be because fewer people sought tests, fewer test providers were open to give tests, a lag in reporting tests over the holidays, or some combination of those. Regardless, the surge in reported cases Virginia had experienced prior to Thanksgiving plateaued, and then dropped. We can hope that this reflects a real drop in infections, but that is optimistic. Test positivity continued to rise, suggesting a drop in testing or lag in reporting is the cause.

## The Travel Data

Nationally, [traveler throughput at Transportation Security Administration checkpoints](#) topped 900,000 a day on average over Thanksgiving week, a first since the beginning of the pandemic. However, this is far less than the 2.4 million in 2019, and not much higher than the previous pandemic peak of about 870,000. Rather, airline travel has been increasing steadily since May, overwhelming the short-term increase over Thanksgiving. Similarly, [searches in Apple maps](#) by Virginians ticked up just prior to Thanksgiving, but were dwarfed by a longer-term decrease in requests since August. Similarly, data collected by the [University of Maryland](#) shows the number of trips and miles traveled per person also increased, but just mildly.

## Family Gatherings

While data on gatherings is more difficult to collect, several datasets do offer clues. As you might expect, cell phone data [reported by Google](#) shows an uptick in visits to grocery stores and retail outlets just prior to Thanksgiving, with a decrease afterwards, as time in residential settings increased. However, time in workplaces also dropped over Thanksgiving. It is unknown whether people stayed home or visited others. [Unacast](#), also using cell phone data, reports the number of unique human encounters was steady over Thanksgiving week. [Safegraph](#) shows that visits to restaurants and bars dipped as well.



*Difference in encounter density in Virginia provided by [Unacast](#). Encounters were highest over the summer, matching visits to parks in the [Google Mobility](#) data, suggesting many encounters were outdoors.*

## Surge on Surge or just Surge?

While travel data seems to suggest many Americans avoided travel there is much it cannot tell us. One of the main concerns of holidays is that people break their usual "bubble". They also tend to spend long periods of time indoors in a relaxed environment, facilitating transmission. [Canada experienced a surge](#) following its Thanksgiving holiday, which occurred on Oct 12, likely due to gatherings. Unfortunately, many elderly and vulnerable Americans see the holidays as a reason to let their guard down as well. With only a few months left before vaccines may begin to have an impact we should all remain vigilant, especially over the holidays. Virginia's health is in our hands.